

WHAT IS CLAIMED:

1 1. A method of reducing sensing artifacts in cardiac electrical activity sensing equipment
2 used in concert with cardiac stimulating equipment comprising the steps of:
3 operably electrically connecting an adapter to a conventional cardiac
4 stimulator and an electrocardiograph;
5 applying an electrical stimulus to cardiac tissue via a stimulating lead;
6 simultaneously enabling an impedance switch operably electrically
7 connected to a sensing lead to increase the impedance of the sensing lead;
8 further simultaneously enabling sensor lead shunts to dissipate any residual
9 charge in the sensing lead;
10 thereafter, terminating the electrical stimulus and simultaneously activating
11 stimulation shunts to dissipate residual charge in the stimulation lead; and
12 thereafter, simultaneously, disabling the impedance switch and disabling the
13 sensor lead shunts to allow sensing of cardiac electrical activity.

1 2. The method as claimed in claim 1, further comprising the step of sensing cardiac
2 electrical activity within about one hundred milliseconds after applying the electrical stimulus.

1 3. The method as claimed in claim 1, further comprising the step of sensing cardiac
2 electrical activity within about fifty milliseconds after applying the electrical stimulus.

1 4. The method as claimed in claim 1, further comprising the step of incorporating the
2 adapter in a lead connector.

1 5. The method as claimed in claim 1, further comprising the step of incorporating the
2 adapter into a lead assembly.

1 6. An adapter for operable electrical connection between a conventional cardiac stimulator
2 having stimulation outputs, cardiac sensing equipment having sensing inputs and a lead set
3 having at least one pair of stimulation leads and at least one pair of sensing leads, the adapter
4 comprising:

5 a current sensing circuit interposed between the stimulation outputs and
6 one of the pairs of stimulation leads;

7 a switch timing circuit interconnecting the current sensing circuit with an
8 impedance switch;

9 a stimulation shunt timing circuit interconnecting the current sensing
10 circuit with a stimulation shunt, the stimulation shunt selectively electrically
11 interconnecting the pair of stimulation leads; and

12 a sensing shunt timing circuit interconnecting the current sensing circuit
13 with a sensor shunt.

1 7. An adapter for operable electrical connection between a conventional cardiac stimulator
2 having stimulation outputs, cardiac sensing equipment having sensing inputs and a lead set

3 having at least one pair of stimulation leads and at least one pair of sensing leads, the adapter

4 comprising:

5 a current detector for detecting current at the stimulation outputs;

6 a pair of impedance switches interposed between the sensing inputs and
7 the sensing leads, the impedance switches being operably controlled by the
8 current detector;

9 a stimulation shunt circuit for shunting the stimulation leads to dissipate
10 residual electrical charge, the stimulation shunt circuit being operably controlled
11 by the current detector; and

12 a sensing shunt circuit for shunting the sensing leads to dissipate residual
13 electrical charge.

1 8. The adapter as claimed in claim 7, further comprising a switch timing circuit controlled
2 by the current detector for controlling the impedance switches.

1 9. The adapter as claimed in claim 7, further comprising a sensor shunt timing circuit
2 controlled by the current detector for controlling the sensor shunt circuit.

1 10. The adapter as claimed in claim 7, in which the adapter is incorporated into a lead
2 connector.

1 11. The adapter as claimed in claim 7, in which the adapter is incorporated into a lead set.

12. The adapter as claimed in claim 7, in which the adapter is powered by a power source selected from a group consisting of an internal battery, an externally connected power supply, the conventional cardiac stimulator and the cardiac sensing equipment.

13. The adapter as claimed in claim 7, in which the adapter allows the sensing of cardiac electrical activity within about one hundred milliseconds after applying the electrical stimulus.

14. The adapter as claimed in claim 7, in which the adapter allows the sensing of cardiac electrical activity within about fifty milliseconds after applying the electrical stimulus.

15. An adapter for operable electrical connection between a conventional cardiac stimulator having stimulation outputs, cardiac sensing equipment having sensing inputs and a lead set having at least one pair of stimulation leads and at least one pair of sensing leads, the adapter comprising:

means for detecting current at the stimulation outputs;

means for selectively switching impedance interposed between the sensing inputs and the sensing leads, the means for selectively switching impedance being operably controlled by the means for detecting current;

means for shunting the stimulation leads to dissipate residual electrical charge, the stimulation shunting means being operably controlled by the means for detecting current; and

means for shunting the sensing leads to dissipate residual electrical charge.

1 16. The adapter as claimed in claim 15, further comprising means for timing the impedance
2 switching controlled by the means for detecting current for controlling the means for selectively
3 switching impedance.

1 17. The adapter as claimed in claim 15, further comprising means for timing the means for
2 shunting the sensing leads controlled by the means for detecting current.

1 18. The adapter as claimed in claim 15, in which the adapter is incorporated into a lead
2 connector.

1 19. The adapter as claimed in claim 15, in which the adapter is incorporated into a lead set.

1 20. The adapter as claimed in claim 15, in which the adapter is powered by a power source
2 selected from a group consisting of an internal battery, an externally connected power supply, the
3 conventional cardiac stimulator and the cardiac sensing equipment.

1 21. The adapter as claimed in claim 15, in which the adapter allows the sensing of cardiac
2 electrical activity within about one hundred milliseconds after applying the electrical stimulus.

1 22. The adapter as claimed in claim 15, in which the adapter allows the sensing of cardiac
2 electrical activity within about fifty milliseconds after applying the electrical stimulus.